

Hanford Reach National Monument / Saddle Mountain National Wildlife Refuge

Noxious Weeds Field Guide



Prepared for educational and field use by Staff of the Hanford Reach National Monument/Saddle Mountain National Wildlife Refuge.

Hanford Reach National Monument Saddle Mountain National Wildlife Refuge

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What is a Noxious Weed?

Weeds are plants that interfere with management objectives for a given area of land at a given point in time. Noxious weeds are invasive non-native plants that are aggressive, competitive, highly destructive or difficult to control. "Noxious weed" is also a legal term: the Washington State Noxious Weed List is a regulatory list identifying plants that, by law, must be controlled.

The Problem of Noxious Weeds:

Noxious weeds are fierce competitors – able to invade and dominate sites very quickly. Many of these weeds are poisonous or can cause other types of physical damage to wildlife, livestock, and humans. Because most of these are non-native, they are able to outcompete the local native plants. Generally, wherever the noxious weed species originates from, wherever **it** is a native plant, there are predators and competitors that evolved to keep that plant population in check. Without the normal predators and competitors, these plants can flourish. The spread of noxious weeds degrade the ecological balance of our lands – leading to increased erosion, damage to streams and fisheries, losses in wildlife, increased fire danger, and losses of culturally significant plants such as roots and medicines. These plants can alter the ability of native plants to recover from disturbance, and permanently change vegetative communities and wildlife habitat. For example, Spotted Knapweed in Western Montana has eliminated 90 percent of elk forage in some sites!

Myths about Noxious Weeds:

There is a lot of talk about "ob-noxious" weeds, leading to some bad information.

Myth #1: Fire kills weeds

Fire is a tool that we can use in the control of weeds; however, it must be timed correctly and used in combination with other measures such as re-seeding, chemical use, and livestock management. Some weeds actually LIKE fire – because they can outcompete the native plants after fire goes through. Examples of this are cheatgrass and knapweed.

Myth #2: Grazing will kill them out

Many of these plants are poisonous to animals and livestock. Tansy ragwort, knapweed, houndstongue and others can cause problems from skin disorders to liver damage and other fatal diseases. Some edible plant seeds can actually pass through the animal (yup – all the way through) and get "planted" wherever the pie falls. Improper grazing management can lead to an explosion of weeds, animals graze on preferred native plants and weaken their ability to compete against noxious weeds, while hooves disturb the soil giving weeds the opportunity

to spread into disturbed sites.

Myth #3: Ok, we sprayed 'em this year so now they are gone!

Weeds are tough, we need to treat them year after year to get rid of them. Weed control programs take 10 years or longer to complete. One reason is that weed-seeds may stay dormant in the soil for many years (Scotch broom seeds can sit there for 60 years!). Fact is, we need to use an integrated approach (many different tools) and keep it up for several years to control these weeds and restore our lands.

Myth #4: It doesn't really matter what I do, I'm just one person

If you don't help, who will? We all need to work to stop the spread of noxious weeds at work and at home. By controlling noxious weeds on your property, you eliminate seed sources and reduce the weed population. By practicing common sense and checking your vehicle carriage when coming in or out of an area - you are eliminating one of the weeds' main vectors (avenue of spread). At work, you have a responsibility to this National Monument to protect the resource - noxious weed control is everyone's responsibility.

Noxious Weed Terminology

Allelopathic: this is when a plant can “poison” a site so that other plants cannot grow, kind of like its own personal herbicide. Usually from falling leaves, etc.

Annual: grows, flowers and drops seed in one year or less (Summer annual emerges in spring and flowers by fall, Winter annual emerges in fall and flowers in spring)

Biennial: 2-year life cycle, usually forms a rosette the first year and develops root, then grows a stem for flowering and seed the second year and dies (so sad)

Perennial: lives for more than two years, may seed every year and/or spread by roots

Biological Control: use of insects or other natural enemies to control weeds – these “agents” usually come from the weeds’ hometown and keep the weed “in check.” These are slow to develop – sometimes taking decades to find the right “bug” for the job

Manual / Mechanical Control: this is simply the use of tools and/or machinery to remove or disrupt the weeds (yep, that includes those five-fingered tools at the end of your arms)

Chemical Control: use of chemicals in liquid, solid, and/or gas forms to kill weeds and/or prevent establishment in an area. Can be an effective tool in weed control

Safety Concerns When Working With Noxious Weeds

Many of these weeds are poisonous or may have toxic residues or other chemical properties that can be harmful to you! So remember:

Always wear gloves when handling noxious weeds!!!

What to do with Noxious Weed Material

- 1) Find the plant in the booklet and be sure that you can identify the plant correctly; there is no sense in killing the wrong plant.
- 2) Follow the instructions in the Control and Prevention sections of this booklet – including accurate reporting of location. Most of these weeds can be chopped off and left there – unless they are flowering or have seeds on them, that’s when you need to bag them up and burn them. Isolated plants are the main targets – they are the beginnings of invasions; please take care to remove them!
- 3) If you are supposed to bag the plant, be careful that you get the whole plant and you are not dropping seeds or plant parts on the ground – NEVER toss weeds with flower or seed heads in an open pick-up – they will just blow out!
- 4) If you have questions – just ask your supervisor or contact the Wildlife Biologist!

Yellow Starthistle *Centaurea solstitialis* L.

Identification:

This annual plant grows a stiff upright branched stem from a taproot. The basal rosette has deeply lobed leaves with pointed tips, while upper leaves are entire (un-lobed) and sharply pointed. Plants vary in size depending on conditions – during a drought year they may be as small as 4 inches tall with only a few seedheads. Typically, with adequate moisture, they will grow 2-3' tall. Flowering usually occurs from June to August, occasionally later on moist sites. Flower easily identified by stiff, sharp spines – up to 1" long. These spines make the plant distinctive and easy to identify.

Potential Damage:

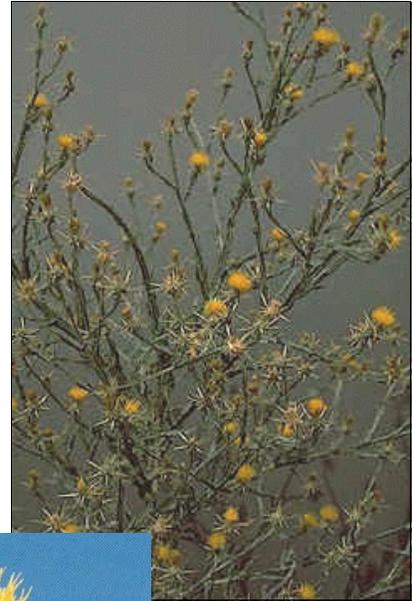
This plant is a nightmare. Millions of acres in Montana, Idaho, and California have been infested and/or taken over by this highly vigorous plant. It takes over entire sites by out-competing native plants and grasses. It will eliminate forage and habitat for livestock, deer, elk, and other wildlife. Possibly poisonous to livestock, causing fatal "chewing disease" in horses. Its presence increases runoff and damage to stream systems and fisheries. Seeds may remain viable in the seed bank for up to 10 years.

Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK infested sites with bright pink or orange flagging. MARK SITE on map and provide to Refuge Operations Specialist **immediately** upon return from field. Constant effort, annually, during spring and fall growing seasons is necessary to prevent spread of this plant. Yellow star thistle is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.

Current Status on the Hanford Reach National Monument:

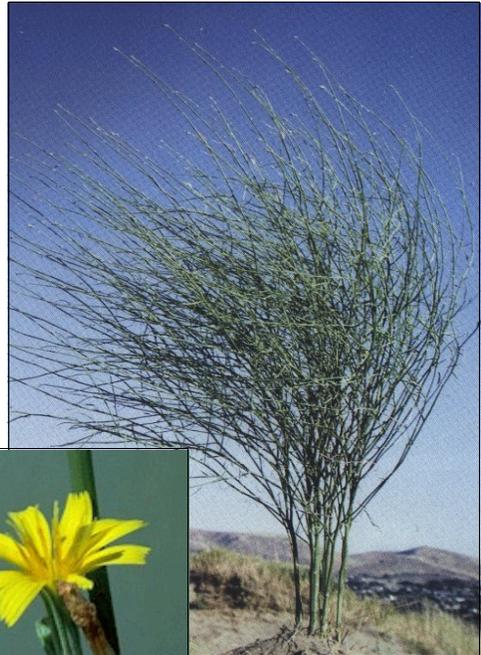
Known areas of infestation are on the Wahluke Unit Ringold area. One individual plant was found on ALE in the road bed. **Please be aware and look for this plant everywhere, but especially when on Wahluke and when driving on ALE.**



Rush Skeletonweed *Chondrilla juncea* L.

Identification:

This perennial plant grows close to the ground before bolting; its basal rosette leaves (sharply toothed, lance-shaped) are similar to the common dandelion. Stems of the mature plant are sparsely leaved approximately 1-4' in height, and appear wiry. The bottom 4–6" of the stem has numerous, red, downward bent coarse hairs. Scattered on its branches at the leaf axils or branch tips, the small (3/4") blossom of bright yellow petals ends with a distinguishing saw tooth shape. Flowering begins in early summer and continues thru fall frost. Stems exude a latex like substance when broken.



Potential Damage:

Spreads on wind currents from roadsides to rangelands to croplands; once in croplands, cultivation is the major mode of spread and control is no longer feasible. It out competes native, beneficial or crop plants; latex sap gums up harvesting machinery.



Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units.

MARK infested sites with bright

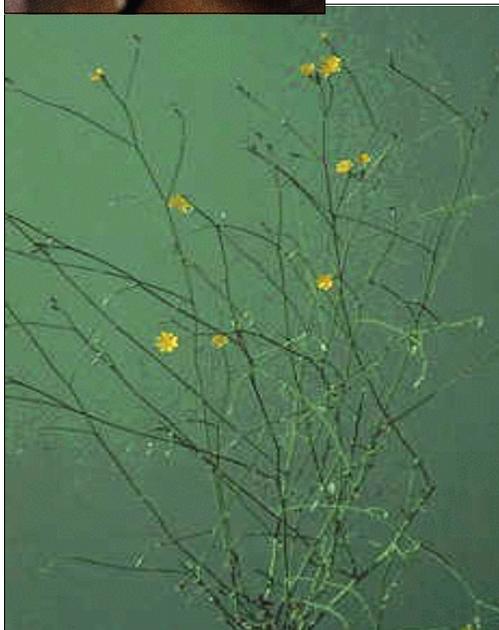
pink or orange flagging. MARK

SITE on map and provide to Refuge Operations Specialist

immediately upon return from field.

Rush skeleton weed is a Class B noxious weed in Washington

state and land owners/managers are legally required to prevent the spread of this plant.



Current Status on the Hanford Reach National Monument: Known infestation in the SE corner of ALE, near the junction of Hwy. 240 and Hwy. 225. This area has been patrolled and sprayed annually.

Please be aware and look for this plant everywhere, but especially when on ALE.

Russian Knapweed *Centaurea repens* L.

Identification:

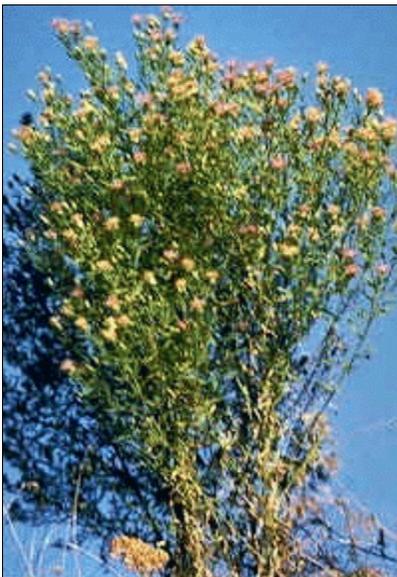
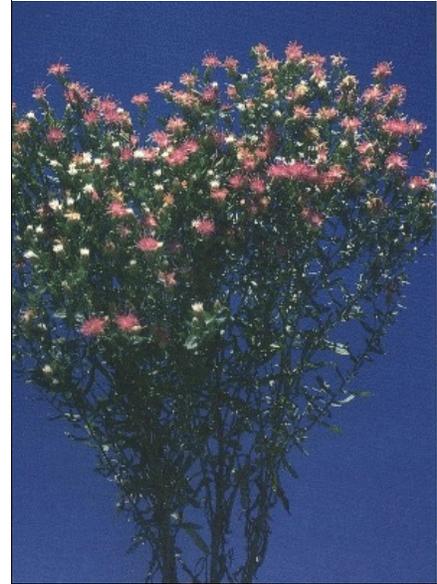
This perennial plant can grow up to 3 feet tall, erect, often in dense patches of upright single stems from widely spreading black roots which may go 8' deep or more. Plants start as grey-green rosettes, and become more evergreen as they bolt upward. Widely spaced plants may branch out from the base and appear "bushy". Flowering occurs from June to September, with lavender-blue to pink thistle-like blossoms.

Potential Damage:

Crowds out native and forage plants. Colonies of this plant eliminate all other plants from an area. Reduces feed for livestock and wildlife, increases runoff and degradation of streams for fisheries.

Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK SITE on map and provide to Refuge Operations Specialist upon return from field. Fortunately, the spread of this plant is not extremely fast. However, control is difficult due to the fact that the plant can spread from both seeds and root shoots. Restoration plans should be made for areas where control is conducted. Russian knapweed is a Class B noxious weed in Washington state and landowners/managers are legally required to prevent the spread of this plant.



Current Status on the Hanford Reach National Monument:

Populations of Russian Knapweed on the ALE are near Rattlesnake springs and Benson Ranch, these populations are being treated annually. Other locations of Russian Knapweed are on Wahluke near Ringold, and on Saddle Mountain National Wildlife Refuge on flat areas near the River. Mapping these populations will be a first priority, followed by preparation of restoration plans prior to treatment. Treatments will take place, only when they can be followed up with a restoration effort. Mechanical treatments, such as mowing, can be used to limit seed production of mature plants, and to prevent spread. **Please be aware and look for this plant everywhere.**

Purple Loosestrife *Lythrum salicaria* L.

Identification:

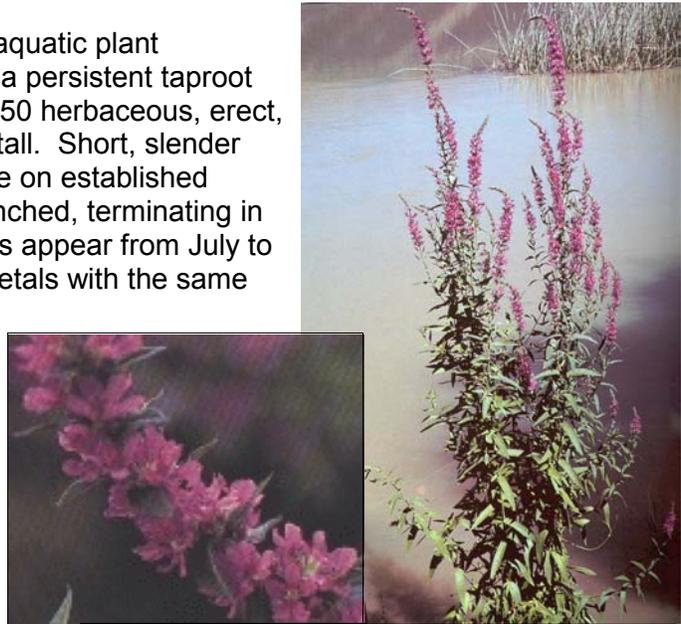
Purple loosestrife is a perennial, emergent aquatic plant associated with moist or marshy areas with a persistent taproot and spreading rootstock. As many as 30 – 50 herbaceous, erect, annual stems per plant can rise to about 9' tall. Short, slender branches spread out to form a crown 5' wide on established plants. Stems are somewhat squarish, branched, terminating in flowering stalks. Showy, rose-purple flowers appear from July to early October. Each flower contains 5 - 7 petals with the same number of sepals. Spreads by producing millions of tiny seeds which are borne on wind or water, and by rhizomatous roots or root fragmentation.

Potential Damage:

The negative impact from purple loosestrife in wetland habitat far outweighs any economic gain from horticultural or medical uses. Disruption of wetland ecosystems by displacement of native plants, loss of ground cover, nesting materials, and food sources results in loss of waterfowl and other birds, as well as fur-bearing animals.

Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK SITE on map and provide to Refuge Operations Specialist upon return from field. Purple Loosestrife is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.



Current Status on the Hanford Reach National Monument:

Biological controls (*Galerucella* sp. beetles) have been released on the population of purple loosestrife at the White Bluffs boat landing, on the islands in the Hanford Reach, and at the WB-10 wasteway ponds. Future releases will continue to augment these populations. Mechanical treatments, such as mowing, can be used to limit seed production of mature plants, and to prevent spread.

Puncturevine, Bullhorns, Goathead, Sandbur *Tribulus terrestris* L.

Identification:

Puncturevine is a summer annual that spreads (up to 10') from a central root and forms a "mat". Leaves are hairy and divided into 4-8 pairs of oblong leaflets. Usually emerges in late April or May with warmer weather – continuing on until frost. Yellow flowers appear as early as 3 weeks after seedlings first emerge, with viable fruits and seed 1-2 weeks later. Fruits consist of 5 sections which, at maturity, break into tack-like structures with sharp, sometimes curving spines. Puncturevine is generally found on disturbed areas including driveways, roadsides, and parking lots.

Potential Damage:

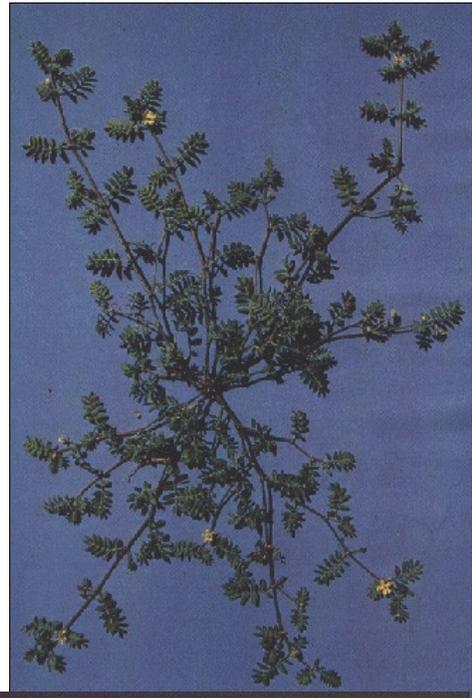
One plant in a California study produced over 576,000 fruits. With an average of 4 seeds per fruit that is over 1 million seeds per plant! Seeds may remain dormant in soil for up to 5 years. This weed is a nuisance; it can flatten vehicle tires, it poses a hazard to people in public use areas, and it may possibly injure wildlife.

Control and Prevention:

Take care not to drive or walk thru infested areas. This could put vehicle tires at risk. Stop and inspect vehicle between patrol units. MARK SITE on map and provide to Refuge Operations Specialist upon return from field. Puncturevine is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.

Current Status on the Hanford Reach National Monument:

Puncturevine has been documented on the Wahluke unit north of Highway 24. One plant was noted near gates 106 and 118 of ALE. Pulling and spraying these plants is important to prevent spread. Be especially cognizant not to drive through a population of Puncturevine and continue to drive spreading the plant into new areas. Please check vehicles regularly.



Dalmatian Toadflax *Linaria dalmatica* L.

Identification:

A perennial with bright yellow, snapdragon-like flowers, tinged with orange, this plant's life cycle is short-lived. Flowering from May through August, it reproduces by seeds or roots. Usually 1-2 feet tall, erect, its blue-green, smooth, heart-shaped leaves clasp the branching stems. Basal leaves are waxy. It is found in fields, over grazed pastures, rangelands, waste areas and roadsides. Often found in moist areas. May be confused with Common Mullein, but Mullein has rosette of fuzzy leaves at it's base.

Potential Damage:

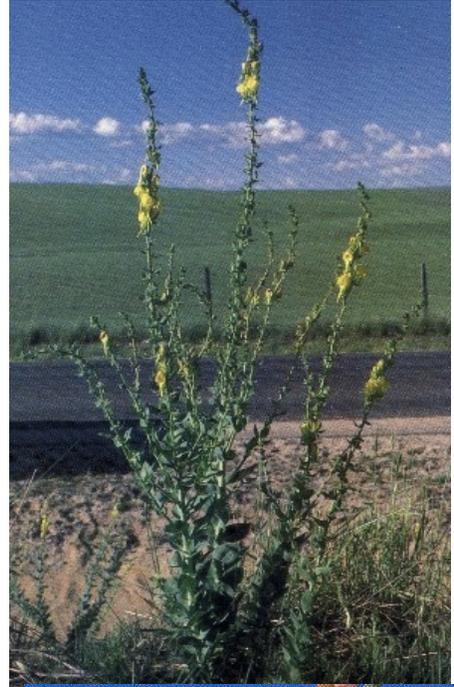
Its extensive root system makes this plant strongly competitive to native vegetation. Dalmatian Toadflax is an unpalatable plant and can reduce habitat value for wildlife.

Control and Prevention:

Take care not to drive or walk thru infested areas. Stop and inspect vehicle between patrol units. MARK infested site with bright pink or orange flagging. MARK SITE on map and provide to Refuge Operations Specialist **immediately** upon return from field. Dalmatian toadflax is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.

Current Status on the Hanford Reach National Monument:

Dalmatian toadflax has not been recorded on the Monument to date. Dalmatian toadflax has been recorded in Benton county. IT IS VERY **IMPORTANT** to record and remove this plant AS SOON AS possible after it is sighted. Please be aware and look for this plant everywhere on the monument. The goal with this plant is to keep it from occupying any areas of the Monument. Eradication of any infestation will be accomplished by Refuge Operations staff.



Perennial Pepperweed, Hoary Cress and related whitetops

Lepidim latifolium L., *Cardaria draba* (L.) Desv., *C. pubescens* (C. A. Meg Jarmolenko), and *C. chalapensis* L.

Identification:

Perennial weeds from the mustard family, they reproduce by seed or from horizontal root stalks. Leaves grow from ground level to form rosettes from fall to spring. Stems shoot up from rosettes during spring to heights of 1-3'. Basal leaves are usually larger than stem leaves. Leaves are often gray-green to blue-green in appearance. Dense white flower clusters near branch ends appear in May and June. Plants have many white flowers with four petals, giving the plant a white, flat-topped appearance.



Potential Damage:

This highly aggressive noxious weed is capable of invasion and take over of rangeland, pasture, and croplands. It is common in disturbed areas, and is highly competitive with other species. Waxy leaf coatings make chemical control difficult. Often, but not always, found in wetlands and moist areas.

Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK SITE on map and provide to Refuge Operations Specialist upon return from field. Control of this plant is difficult due to the fact that the plant can spread from both seeds and root shoots, and waxy leaves make chemical control difficult. Restoration plans should be made for areas where control is conducted. Developing an accurate map of where this plant occurs on the Monument/Refuge is a high priority. Perennial Pepperweed is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.



Current Status on the Hanford Reach

National Monument: A population of white top was noticed post-fire near Rattlesnake springs on ALE. Also, along highway 240 through ALE north of the 118 gate. Please look for this plant on Saddle Mountain and Wahluke so that all populations of this plant can be mapped.

Diffuse Knapweed, Tumble Knapweed

Centaurea diffusa Lam.

Identification:

Normally a biennial, but may live for several years as a rosette before flowering. Bushy growth, 1-3' tall from a deep taproot. Greyish-green alternating hairy leaves. Flowers in white and rose-purple from June to September or later. Bracts on flower heads are stiff and spiny. Found along most roadsides and driveways, spreading into range and forest areas.

Potential Damage:

Spreads like tumbleweed with the wind, attaches to clothing and animal fur or vehicles. Quickly taking over an area, it crowds out native vegetation. Can invade into relatively undisturbed areas. Invasion reduces or eliminates forage for wildlife such as deer and elk. May cause an increase in runoff resulting in damage to stream systems and fisheries. Seeds can remain viable in the seed bank for up to 10 years.

Control and Prevention:

Take care not to drive or walk through infested areas. This is particularly important as diffuse knapweed tends to spread along the roadways. Stop and inspect vehicle between patrol units. MARK SITE on map and provide to Refuge Operations Specialist upon return from field. Plants can be pulled prior to seed set, however, gloves MUST be worn for this activity due to the carcinogenic compounds that may be in this plant. Diffuse knapweed is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.

Current Status on the Hanford Reach National Monument:

Large infestation of diffuse knapweed on Saddle Mountain National Wildlife Refuge, particularly along roadways. Biological controls (*Larinus* sp. weevils) released on Saddle Mountain. Isolated populations of this plant on ALE, especially in roadways. On ALE, pulling and spraying these plants is important to prevent spread. Isolated areas on Wahluke need to be mapped. **Please be aware and look for this plant.** Be especially cognizant not to drive through a population of diffuse knapweed and continue to drive spreading the plant into new areas. Please check vehicles regularly.



Spotted Knapweed

Centaurea biebersteinii DC. = *Centaurea maculosa* Lam.

Identification:

A perennial, this plant sends several branched upright stems from a “lacy” rosette with a central taproot. Usually 2-4’ tall. Flowers are usually pinkish-purple, but sometimes cream colored. This plant flowers from late spring through fall depending on moisture and temperature. Flower heads have black-topped “bracts” which give the flower heads a “spotted” appearance. Easily confused with diffuse knapweed. Common on roadsides, pastures, forest openings and grasslands.

Potential Damage:

Aggressively out competes native plants and may even have chemical substances which inhibit the growth and development of surrounding vegetation. Will establish in any disturbed soil and spread. Vegetative communities can be altered due to this plant. Some sites in western Montana have recorded a 90% reduction in elk forage availability, resulting in loss of elk and deer herd use in many areas.

Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK infested site with bright pink or orange flagging. MARK SITE on map and provide to Refuge Operations Specialist **immediately** upon return from field. Spotted knapweed is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.

Current Status on the Hanford Reach National Monument:

Spotted knapweed has not been recorded on the Monument to date. Spotted knapweed has been recorded in Washington state. IT IS VERY **IMPORTANT** to record and remove this plant AS SOON AS possible after it is sighted. Please be aware and look for this plant everywhere on the monument. The goal with this plant is to keep it from occupying any areas of the Monument. Eradication of any infestation will be accomplished by Refuge Operations staff.



Hairy Willow-herb *Epilobium hirsutum*

Identification:

This semi-aquatic, softly-hairy perennial herb that ranges in height from 3-6' tall, is found in a wide range of moist soils; capable of forming monotypic stands in natural wetland areas where its aggressive and dense growth can crowd out native or beneficial species. It frequently shares habitat with purple loosestrife. Showy rose-purple flowers extend from leaf axils near the top of the plant. Each flower has four sepals, four notched petals and eight stamens. Flowering occurs in July and August.

Potential Damage:

Capable of spreading by wind dispersed seeds, it also has a large root system that produces rhizomes, which facilitate vegetative spread. Disruption of wetland ecology leads to altering of food chains, hydrologic cycles and floral composition.

Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK infested site with bright pink or orange flagging. MARK SITE on map and provide to Refuge Operations Specialist **immediately** upon return from field. Hairy willow-herb has not yet been classified by the noxious weed board in Washington state. However, this is because it's current distribution in Washington is limited.

Current Status on the Hanford Reach National Monument:

Hairy willow-herb has not been recorded on the Monument to date. Hairy willow-herb has been recorded in Washington state. IT IS **VERY IMPORTANT** to record and remove this plant AS SOON AS possible after it is sighted. Please be aware and look for this plant everywhere on the monument. The goal with this plant is to keep it from occupying any areas of the Monument. Eradication of any infestation will be accomplished by Refuge Operations staff. This plant has been spreading very quickly in areas of Franklin county.



Salt Cedar *Tamarix ramosissima* Ledeb.

Identification: Salt Cedar species are spreading shrubs or small trees, 5-20' tall, with numerous slender branches and small, alternate, scale-like leaves. Bark of saplings is reddish-brown. From March through September, large numbers of small pale pink to white flowers appear in dense masses on 2- inch long spikes at branch tips.

Potential Damage:

As an aggressive colonizer, able to survive in a variety of habitats, it often forms monotypic stands, replacing willows, cottonwoods, and other native riparian vegetation. The stems and leaves of mature plants secrete salt; forming a crust above and belowground that inhibits other plants and changes soil chemistry. It is also an enormous water consumer. A single large plant can absorb 200 gallons of water per day. This consumption stresses native vegetation by lowering ground water levels and can dry up springs and marshy areas. These infestations also have detrimental impacts on wildlife. Its seeds have almost no protein value; its leaves offer little forage for browsing animals. It is not a favored bird habitat. Spreads by producing millions of tiny seeds borne on wind or water.



Control and Prevention: Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK infested site with bright pink or orange flagging. MARK SITE on map and provide to Refuge Operations Specialist **immediately** upon return from field. Salt Cedar is a Class A noxious weed in Washington state and land owners/managers are legally required to attempt to eradicate this plant.



Current Status on the Hanford Reach National Monument:

There is a relatively large salt cedar infestation on the Wahluke unit north of the White Bluffs boat launch, and down to the river. Scattered plants have been found along WB-10 wasteway and on Saddle Mountain Refuge. Mapping and control efforts on this plant are a high priority. The goal is to eradicate this plant. Larger infestation areas have been aerial sprayed annually, but re-sprouting continues. Monitoring treated areas annually is also a priority. **Please be aware and look for this plant everywhere, but especially when on Wahluke.**

Canada Thistle *Cirsium arvense* L.

Identification:

Canada thistle is a perennial plant that starts out as a rosette and can grow up to four feet tall. This plant is colony forming and can sprout new plants from the extensive root system. Flower heads are pink, purple or white, and are ½" to 3/4" in diameter. Flowers occur from July to August. The leaves are dark green in color, alternately arranged on a hairy stem, and are oblong to lance shaped with sharp tipped lobes.

* Be sure not to confuse the Canada Thistle with the native Wavyleaf Thistle. Wavyleaf Thistle has lighter colored flowers-pale pink to creamy white, and has deeply lobed leaf margins. The leaves appear gray, rather than green. The flowering heads of Wavyleaf Thistle are large and distinct, usually appearing as one flower per stem. Flower head bracts have a white margin.



Potential Damage:

Canada Thistle reduces forage in crops, pastures and rangelands. It is a competitor for light, moisture and nutrients, which causes a reduction in crop yield and reduces biodiversity in native vegetation stands.



Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK infested sites with bright pink or orange flagging. MARK SITE on map and provide to Refuge Operations Specialist upon return from field. Plants can be pulled prior to seed set. Constant effort, annually, during spring and fall growing seasons is necessary to prevent spread of this plant. Canada Thistle is a class C noxious weed in Washington state and land owners are required to prevent all seed production and prevent the spread of this weed.



Current Status on the Hanford Reach National Monument:

Canada Thistle exists on the Monument along the irrigation wasteway on the Saddle Mountain and Wahluke units. This weed has been located near the springs on ALE. **Please be aware and look for this plant everywhere, especially on the Wahluke and Saddle Mountain units.**

Scotch Thistle *Onopordum acanthium* L.

Identification:

Scotch Thistle is a biennial that can grow up to 12 feet tall. The first year plant forms a rosette of leaves, and develops large flowering stems the second year. The leaves of this plant are large and spiny and covered with fine dense hairs that give it a grayish appearance. The upper leaves are alternate and coarsely lobed bearing sharp yellow spines. The basal leaves may be up to 2 feet long and 1 foot wide. Flower production is in the second year with the flowers being 1-2 inches in diameter with spine-tipped bracts. They are violet to reddish in color and bloom from August to June.

* Be sure not to confuse Scotch Thistle with Wavyleaf Thistle. Wavyleaf Thistle has lighter colored flowers-pale pink to creamy white, and deeply lobed leaf margins. Wavyleaf Thistle also appears gray, but flowers are distinctly different, large and pale, flower bracts have white margins and appear striped.

Potential Damage:

Scotch Thistle is a very aggressive plant that can form dense, impenetrable stands. The buried seeds can remain viable in the soil for at least 7 years, possibly 20 or more years, and one plant can produce 20,000 to 40,000 seeds.

Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK infested sites with bright pink or orange flagging. MARK SITE on map and provide to Refuge Operations Specialist **immediately** upon return from field. Constant effort, annually, during spring and fall growing seasons is necessary to prevent spread of this plant. Scotch Thistle is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.

Current Status on Hanford Reach National Monument:

Scotch Thistle has not been reported on the Hanford Reach National Monument to date, although it occurs in surrounding counties. Vigilance regarding this plant is required to keep it from developing an infestation. IT IS VERY **IMPORTANT** to record and remove this plant AS SOON AS possible after it is sighted. Please be aware and look for this plant everywhere on the monument especially around water. The goal with this plant is to keep it from occupying any areas of the Monument. Eradication of any infestation will be accomplished by Refuge Operations staff.



Camelthorn *Alhagi pseudalhagi* Bieb.

Identification:

This grayish green perennial is a spiny, intricately branched shrub that grows 1 ½ to 4 feet tall. The spines are ¼ to ⅓ of an inch long. The leaves are alternate and wedge shaped with tiny hairs on the underside. The thick and leathery leaves are ¼ to 1¼ inches long and ⅛ to ½ inch wide. Camelthorn grows small pea-like flowers that range in color from pink to maroon, blooming from June to July. The seeds and fruit develop from July to August.



Potential Damage:

Camelthorn spreads by seeds and rhizomatous roots. It can spread at a rate of 10 meters per year causing large infestations to develop in a very short period of time. The seeds are spread by wind, wildlife and vehicles.



Control and Prevention:

Take care not to drive or walk through infested areas. Stop and inspect vehicle between patrol units. MARK infested sites with bright pink or orange flagging. MARK SITE on map and provide to Refuge Operations Specialist immediately upon return from field. Constant effort, annually, during spring and fall growing seasons is necessary to prevent spread of this plant. Camelthorn is a Class B noxious weed in Washington state and land owners/managers are legally required to prevent the spread of this plant.



Current Status on the Hanford Reach National Monument:

Camelthorn is currently found on the Wahluke slope north of highway 24 on the asphalt pad near the old dog trial area. **Please be aware to look for this plant everywhere, but especially on the Wahluke slope.**